

University of Bahrain  
College of IT  
Department of Computer Science  
**BSc. In COMPUTER SCIENCE PROGRAM CURRICULUM**  
(2016 Program)

**Semester 1**

Code	Title	Lec	Lab	Cr	Prerequisites
ARAB 110	Arabic Language Skills I	3	0	3	
ITCS 113	Computer Programming I	3	2	3	
ENGL 154	Language Development I	3	0	3	
MATHS 101	Calculus I	3	0	3	
PHYCS 101	General Physics I	3	3	4	
<b>Total</b>		<b>15</b>	<b>5</b>	<b>16</b>	

**Semester 2**

Code	Title	Lec	Lab	Cr	Prerequisites
ITCS 114	Computer Programming II	3	2	3	ITCS 113
ENGL 155	Language Development II	3	0	3	ENGL 154
PHYCS 102	General Physics II	3	3	4	PHYCS 101
ITIS 103	Fundamentals of Information Systems	3	2	3	
MATHS 102	Calculus II	3	0	3	MATHS 101
<b>Total</b>		<b>15</b>	<b>7</b>	<b>16</b>	

**Semester 3**

Code	Title	Lec	Lab	Cr	Prerequisites
HIST 122	Modern Bahrain History and Citizenship	3	0	3	
ISLM 101	Islamic Culture	3	0	3	
ITCS 214	Data Structures	3	2	3	ITCS 114
STAT 273	Probability and Statistics	3	0	3	MATHS 101
ITCE 250	Digital Logic	3	2	3	ITCS 113
ITCS 254	Discrete Structures I	3	2	3	ITCS 113 & MATH 101
<b>Total</b>		<b>18</b>	<b>6</b>	<b>18</b>	

**Semester 4**

Code	Title	Lec	Lab	Cr	Prerequisites
ITCS 255	Discrete Structures II	3	2	3	ITCS 254
XXXX XXX	Science Elective	3	3	4	
ITCS 285	Database Management Systems	3	2	3	ITCS 214
ENGL 219	Technical Report Writing	3	0	3	ENGL 155
ITCS 316	Human-Computer Interaction	3	2	3	ITCS 214
<b>Total</b>		<b>15</b>	<b>9</b>	<b>16</b>	

**Semester 5**

Code	Title	Lec	Lab	Cr	Prerequisites
ITCS 347	Analysis and Design of Algorithms	3	2	3	ITCS 214 & ITCS 255
ITCS 321	Computer Organization and Assembly Language	3	2	3	ITCS 114 & ITCE 250
ITCS 333	Internet Software Development	3	2	3	ITCS 285
ITCS 389	Software Engineering I	3	2	3	ITCS 285
ITCS 396	Professional Issues and Ethics	3	2	3	ENGL 219
MATHS 211	Linear Algebra	3	0	3	MATHS 101
<b>Total</b>		<b>18</b>	<b>10</b>	<b>18</b>	

**Semester 6**

Code	Title	Lec	Lab	Cr	Prerequisites
ITCS 317	Formal Language and Automata	3	2	3	ITCS 214 & ITCS 255
ITCS 325	Operating Systems	3	2	3	ITCS 214 & ITCS 321
HRLC 107	Human Rights	2	0	2	
ITCS 4XX	ITCS Elective I	3	2	3	
ITCE 314	Computer Networks I	3	2	3	ITCS 114 & STAT 273
ITCS 489	Software Engineering II	3	2	3	ITCS 389
<b>Total</b>		<b>17</b>	<b>10</b>	<b>17</b>	

Summer						
Code	Title	Lec	Lab	Cr	Prerequisites	
ITCS 481	Industrial Training	0	3	1	Pass 85 credits	

#### Semester 7

Code	Title	Lec	Lab	Cr	Prerequisites	
ITCS 440	Intelligent Systems	3	2	3	ITCS347	
XXXX XXX	Business Free Elective	3	X	3		
ITCE 416	Computer Networks II	3	2	3	ITCE314	
ITCS 4XX	ITCS Elective II	3	2	3		
ITCS 498	Senior Project	0	6	3	ENGL 219 & pass 85 credits	
<b>Total</b>		<b>12</b>	<b>12</b>	<b>15</b>		

#### Semester 8

Code	Title	Lec	Lab	Cr	Prerequisites	
ITCS 411	Cryptography and Computer Security	3	2	3	ITCS 347	
ITCS 4XX	ITCS Elective III	3	2	3		
ITCS 4XX	ITCS Elective IV	3	2	3		
HU/SS XXX	Humanities/Social Sciences	3	0	3		
ITCS 441	Parallel and Distributed Computing	3	2	3	ITCS 325	
<b>Total</b>		<b>15</b>	<b>8</b>	<b>15</b>		

**Total Credit Hours: 132**

#### ELECTIVE COURSES

Code	Title	Lec	Lab	Cr	Prerequisites	
ITCS 416	Advanced Operating Systems	3	2	3	ITCS 325	
ITCS 421	Geographical Information Systems	3	2	3	ITCS 214	
ITCS 433	Design of Programming Languages	3	2	3	ITCS 317	
ITCS 437	Computer Graphics	3	2	3	ITCS 214 & MATHS 211	
ITCS 443	Optimization Techniques	3	2	3	ITCS 214 & MATHS 211	
ITCS 444	Mobile Application Development	3	2	3	ITCS 333	
ITCS 448	Cloud Computing	3	2	3	ITCE314	
ITCS 449	Computer Vision	3	2	3	ITCS 347 & STAT 273	
ITCS 453	Multimedia and Hypermedia Systems	3	2	3	ITCS 214	
ITCS 455	Semantic Web	3	2	3	ITCS 333	
ITCS 457	Data Mining	3	2	3	ITCS 285 & ITCS347	
ITCS 461	Advanced Database Management Systems	3	2	3	ITCS 285	
ITCS 464	Information Retrieval	3	2	3	ITCS 333	
ITCS 465	Numerical Computations	3	2	3	ITCS 255 & MATHS 211	
ITCS 494	Selected Topics in Computer Science	3	2	3	Department Approval	
ITCS 496	Physical Implementation of DBMS	3	2	3	ITCS 285	

**Science Elective Course:** Any UOB Science course from the following list:

1. CHEMY101 (GENERAL CHEMISTRY I)
2. BIOLS102 (GENERAL BIOLOGY I)
3. EEG100 (CIRCUIT THEORY I) -> Pre-requisite: PHYCS101

**Or any other science course approved by the department chair.**

**Business Elective Course:** Any UOB Business course from the following list:

1. ACC112 (FINANCIAL ACCOUNTING)
2. MGT131 (INTRO. TO BUSINESS ADMINISTRATION)
3. MGT341 (SMALL BUSINESS MANAGEMENT)
4. MKT261 (MARKETING MGT.)

**Or any other business course approved by the department chair.**

**HU/SS Courses - Humanities and Social Science Component:** Any course from the following:

**Humanities:** Fine Arts, History, American Studies, Classics, Communications, English, (Foreign Language) French, Music, Philosophy, Theatre, Literature (Arabic), Religion (comparative).

**Social Science:** Anthropology, Economics, Education, Geography, History, Psychology, Sociology, Women's Studies, Political Science.

#### Graduation Requirements

1. Passing the B.Sc. Program with overall GPA at least 2.0.
2. The GPA of the major courses ITXX should be at least 2.0 (only the best grade of the repeated major courses will be counted.)